

PERMIT NO.:

Date Rec'd.:

Amount Rec'd.:

Check No.:

Rec'd By:



Montana Department of ENVIRONMENTAL QUALITY

WATER PROTECTION BUREAU

FORM
NOI

Notice of Intent (NOI) for Montana Pollution Discharge Elimination System Application for New and Existing Concentrated Animal Feeding Operations

The Application form is to be completed by the owner or operator of a Concentrated Animal Feeding Operation (CAFO) or Aquatic Animal Production Facility. Please read the attached instructions before completing this form. You must print or type legibly; forms that are not legible or are not complete will be returned. You must maintain a copy of the completed application form for your records.

Section A - Application Status (Check one):

- ☐ New No prior application submitted for this site.
- ☒ Resubmitted Permit Number: MTG 010231
- ☐ Renewal Permit Number: MTG _____
- ☐ Modification Permit Number: MTG _____

Section B - Facility or Site Information (See instruction sheet.):

Site Name Swanz Feedlot

Site Location Bercail Creek Road - 15 miles east of Junction US 191 & MT 297

Nearest City or Town Judith Gap County Wheatland

Latitude 46.65 Longitude -109.46

Date Facility began operation? 2008 - Oct.

Is this facility or site located on Indian Lands? ☐ Yes ☒ No

Section C - Applicant (Owner/Operator) Information:

Owner or Operator Name Jason Swanz

Mailing Address 133 Big Careless Creek Rd.

City, State, and Zip Code Judith Gap, MT 59453

Phone Number 406-473-2462

Is the person listed above the owner? ☒ Yes ☐ No

Status of Applicant (Check one) ☐ Federal ☐ State ☒ Private ☐ Public ☐ Other (specify) _____

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Section D - Existing or Pending Permits, Certifications, or Approvals: ☐ None☒ MPDES MTG 010231☐ RCRA☐ PSD (Air Emissions)☐ Other☐ 404 Permit (dredge & fill)☐ Other**Section E - Standard Industrial Classification (SIC) Codes:**

Provide at least one SIC code which best reflects the activity of project described in Section H.

Code	A. Primary	Code	B. Second
1	0211 Beef Cattle Feedlot	2	1799 Excavation Work
Code	C. Third	Code	D. Fourth
3	4911 Electric Service	3	4941 Water Supply

Section F - Facility or Site Contact Person/Position:Name and Title, or Position Title Jason Swanz / ownerMailing Address 133 Big Careless Creek Rd.City, State, and Zip Code Judith Gap MT 59453Phone Number 406-473-2462**Section G - Receiving Surface Waters(s):**

Outfall/Discharge Locations: For each outfall, List latitude and longitude to the nearest second and the name of the receiving waters

Outfall Number	Latitude	Longitude	Receiving Surface Waters
001	46.6509	109.45966	Little Careless Creek
002			
003			
004			
005			

Map: Attach a topographic map extending one mile beyond the property boundaries or the site activity identified in Section B depicting the facility or activity boundaries, major drainage patterns, and the receiving surface waters, stated above. Also identify the specific location of the production area, and land application area(s).

Is the receiving water on the 303(d) list for nutrients (nitrogen and/or phosphorus)

☐ Yes ☒ No

Section H – Concentration Animal Feeding Operation Characteristics

Waste Production, Storage and Disposal

Animal type	Number in Open Confinement	Number Housed Under Roof
<input type="checkbox"/> Mature Dairy Cows		
<input type="checkbox"/> Dairy Heifers		
<input type="checkbox"/> Veal Calves		
<input checked="" type="checkbox"/> Cattle (not dairy or veal)	Capacity of 1000 hd.	
<input type="checkbox"/> Swine (55 lbs or over)		
<input type="checkbox"/> Swine (55 lbs or under)		
<input type="checkbox"/> Horses		
<input type="checkbox"/> Sheep or Lambs		
<input type="checkbox"/> Turkeys		
<input type="checkbox"/> Chickens (broilers)		
<input type="checkbox"/> Chickens (layers)		
<input type="checkbox"/> Ducks		
<input type="checkbox"/> Other (Specify: _____)		
<input type="checkbox"/> Other (Specify: _____)		
<input type="checkbox"/> Other (Specify: _____)		

Manure, Litter and/or Wastewater Production and Use.

How much manure, litter, and process wastewater is generated annually by the facility?

Solid (tons): 6,279 tons Liquid/Slurry (gallons): _____

If land applied, how many acres of land under control of the permit applicant are available to apply the manure, litter, or process wastewater generated from the facility? (Note: Do not include setback distances in available acreage)

1500 Acres

How much manure, litter, and process wastewater is transferred to other persons per year? (estimated) Solid

(tons): ~0- Liquid/Slurry (gallons): _____

Were the containment structures built after February 2006?

- ☒ Do the waste containment structures have 10 feet of separation between the pond bottom and any bedrock formations?
- ☒ Do the waste containment structures have 4 feet of separation from the pond bottom and any ground water?
- ☐ Were any of the waste containment structures built within 500 feet of any existing well?

Type of Containment/Storage	Total Capacity	Units (gallons or tons)	Days of Storage
<input type="checkbox"/> Anaerobic Lagoon			
<input checked="" type="checkbox"/> Storage Pond #1		119,257 gallons	219
<input type="checkbox"/> Storage Pond #2			
<input type="checkbox"/> Storage Pond #3			
<input type="checkbox"/> Storage Pond #4			
<input type="checkbox"/> Storage Pond #5			
<input type="checkbox"/> Above Ground Storage Tank			
<input type="checkbox"/> Below Ground Storage Tank #1			
<input type="checkbox"/> Below Ground Storage Tank #2			
<input type="checkbox"/> Underfloor Pits			
<input type="checkbox"/> Roofed Storage Shed			
<input type="checkbox"/> Concrete Pad			
<input type="checkbox"/> Impervious Soil Pad			
<input checked="" type="checkbox"/> Other (Specify: <u>Forage in field</u>)			
<input type="checkbox"/> Other (Specify: _____)			

Physical Data for CAFO

Nutrient Management Plan

All Concentrated Animal Feeding Operations seeking permit coverage after July 31, 2007 are required to complete and implement a Nutrient Management (NMP). The NMP must be submitted to the Department using the form provided by the Department (Form NMP). Check the box below that applies and provide the required information. The NMP must be developed in accordance with ARM 17.30.1334 and implemented upon the effective date of permit coverage. (Check One)

☐ Does the facility have an NMP?

Date NMP was developed: _____

Date NMP was last modified: August May 2014

☐ NMP has not been prepared; provide detailed explanation below

Section I – Supplemental Information

Pond plans should be on file at DEQ, engineered by NRCS, approved by NRCS

Section J - CERTIFICATION**Permittee Information:**

This Form NMP must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print)

JASON J SWANZ

B. Title (Type or Print)

Owner

C. Phone No.

406-473-2462

D. Signature**E. Date Signed**

2/22/15

The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form (NOI) and the applicable fee to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

AGENCY USE ONLY

PERMIT NO.:

Date Rec'd.:

Amount Rec'd.:

Check No.:

Rec'd By:

2/5/15

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Montana Department of

ENVIRONMENTAL QUALITY

WATER PROTECTION BUREAU

FORM
NMP

Nutrient Management Plan

READ THIS BEFORE COMPLETING FORM: Before completing this form (Form NMP), Concentrated Animal Feeding Operation (CAFO) operators need to read the General Permit, particularly Part IV.A. CAFO operators also need to read the "Instructions For filling out Form NMP," found at the back of this form. Form NMP is intended to help CAFO operators develop a site-specific Nutrient Management Plan, in compliance with Part IV.A of the General Permit and all applicable State rules and statutes. Your Nutrient Management Plan must be maintained at the site as required in Part III of the General Permit. Sections B and C on your Form NMP must state the information exactly the same way as it was stated on the most recently submitted version of your NOI-CAFO. Attach additional pages as necessary, indicating the corresponding section number on this NMP form. The 2013 General Permit, current fee schedule, and related forms are available from the Water Protection Bureau at (406) 444-3080 or <http://www.deq.mt.gov/wqinfo/MPDES/CAFO.asp>

Section A – NMP Status:

- ☐ New No prior NMP submitted for this site.
- ☐ Resubmitted Previous NMP found incomplete.
- ☒ Modification Change or update to existing NMP.
- ☐ New 2013 New 2013 version of NMP.

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Section B – Facility Information:

Facility Name S & G Livestock, LLP Feedlot

Facility Location SW 1/4 of the SE 1/4 of Section 4 T10N-R18E

Nearest City or Town Judith Gap

County Wheatland

Section C – Applicant (Owner/Operator Information):

Owner or Operator Name Jason Swanz - partner (contact)

Mailing Address 133 Big Careless Creek Rd.

City, State, and Zip code Judith Gap, MT 59483

Facility Phone Number 406-473-2462

Email _____

Section D – NMP Minimum Elements:**1. Livestock Statistics**

Animal Type and number of animals	# of Days on Site (per year)	Annual Manure Production (tons, cu. yds. or gal)
1. 1,000 calves, 650# avg,	182	6,279 tons
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Method used for estimating annual manure production:

DEQ 9: (1000 hd x 69 lbs x 182 days)/2000 lbs= 6,279 tons of manure production per year

2. Manure Handling**a. Describe Manure handling at the facility:**

Manure is mounded and allowed to dry.

b. Frequency of Manure Removal from confinement areas:

once annually, typically September.

c. Is this manure temporarily stored in any location other than the confinement area? ☐ Yes ☒ No
If so then how and where?

d. Is manure stored on impervious surface? ☐ Yes ☒ No
If yes, describe type and characteristics of this surface:

3. Waste Control Structures

Waste Control Structures (name/type)	Length (ft.)	Width (ft.)	Depth (ft.)	Volume (cubic ft. or gallons)	Number of days of storage
1. storage pond	155.60	139.00	9	119,257	219
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

What is the 24 hr. 25 yr. storm event at this facility 3 inches

Production area: 22 acres. Type of lot (dirt or paved): dirt

Area contributing drainage from outside CAFO that enters confinement areas and waste storage, conveyance, or treatment structures: 22 acres.

What is the annual precipitation during the critical storage period 7 inches

How much freeboard do the pond(s) have ~ 1 ft

4. Disposal of Dead Animals.

Describe how dead animals are disposed of at this facility:
Dead animal are buried. Carcasses are covered with soil.

5. Clean Water Diversion Practices

Describe how clean water is diverted from production area:

Clean water is diverted away from the feedlot through diversion ditches and grading.

6. Prohibiting Animals and Wastes from Contact with State Waters

Describe how animals and wastes are prohibited from direct contact with state waters:

Animals are confined within the lots. Lots are designed to divert clean water away from the facility. Lots are designed to contain waste water runoff within a storage pond, and is applied to cropland or hay land nearing the facility to ensure proper storage at all times. Waste water from the runoff pond does not enter waters of the state.

Describe how Chemicals and other contaminants are handled on-site:

Chemicals are used on-site and disposed of per manufacturers instructions.

7. Best Management Practice (BMPS)

Describe in detail all temporary, permanent and structural BMPS which will be used to control runoff of pollutants from facility's production area. Indicate the location of these measures. If BMPS are not installed include a schedule for implementation of each of these measures. Examples of BMP measures could include but are not limited to: constructing ditches, terraces,, and waterways above and open lot to divert clean water run on; installing gutters, downspouts and buried conduits to divert roof drainage; providing more roofed area; decreasing open lot surface area; repairing of adjusting water systems to minimize water wastage; using practical amounts of water for cooling purposes; recycling water if practical and applicable.

Production Area BMP's

Terraces will be used to divert all clean water, as well as ground gutters surrounding barns to divert runoff. All practices will be recommended by NRCS and followed by operators. Water system is an on-demand controlled system with little storage to decrease evaporation and wasting of water.

Describe in detail all temporary, permanent and structural Best Management Practices (BMPs) which will be used to control runoff of pollutants from facility's land production area. Indicate the location of these practices. If not already in use, include a schedule for implementation of each of these measures. Attached details and specifications may be used to supplement this description. Examples of BMP measures could include but are not limited to: maintaining setbacks from surface waters for manure applications; managing irrigation practices to prevent ponding of wastewater on land application sites;

never spray irrigating waste on to frozen ground: consulting with the Department prior to applying any liquid waste to frozen or snow-covered ground; applying wastes at agronomic rates.

Land Application BMP's

all manure applications will be done prior to ground freeze. Manure and wastewater will be applied at agronomic rates dictated by current soil tests, and application setbacks will be used. See attached field maps for location of setbacks. Irrigation will be applied with careful attention to crop needs and soil infiltration capacity to prevent pooling.

Buffers ☒ Yes ☐ No

Conservation Tillage ☒ Yes ☐ No

Constructed Wetlands ☐ Yes ☐ No

Grass Filter ☐ Yes ☐ No

Infiltration Field ☐ Yes ☐ No

Residue Management ☐ Yes ☐ No

Set backs ☒ Yes ☐ No

Terrace ☐ Yes ☐ No

Other examples

8. Implementation, Operation, Maintenance and Record Keeping – Guidance

The permittee is required to develop guidance addressing implementation of NMP, proper operation and maintenance of the facility, and record keeping as described in Part 2 of the permit.

Has a guidance document been developed for the facility? ☐ Yes ☒ No

Certify the document address the following requirements:

Implementation of the NMP: ☒ Yes ☐ No

Facility operation and maintenance: ☒ Yes ☐ No

Record keeping and reporting ☒ Yes ☐ No

Sample collection and analysis: ☒ Yes ☐ No

Manure transfer ☐ Yes ☒ No

Provide name, date and location of most recent documentation:

If your answer to any of the above question is no, provide explanation:

No manure transfers within this operation. Operation has sufficient acreage available for manure applications.

Section E – Land Application See Appendix A for more information

Will manure be land applied to land either owned, rented, or leased by the owner or operator of the facility?

- ☐ Yes If yes, then the information requested in Section E must be provided.
- ☒ No If no, then provide an explanation of how animal waste at this facility are managed.

Waste is mounded, allowed to dry, and applied to fields in the fall, typically September.

Photos and/or Maps

Attach an aerial photograph or map of the site where manure is to be applied. (Use multiple photos/maps if necessary to show required details.) The photo(s)/map(s) must be printed on no larger than an 11"X 17" piece of paper, and must clearly identify the following items:

- Individual field boundaries for all planned land application areas
- A name, number, letter or other means of identifying each individual land application field
- The location of any downgradient surface waters.
- The location of any downgradient open tile line intake structures
- The location of any downgradient sinkholes
- The location of any downgradient agricultural well heads
- The location of all conduits to surface waters
- The specific manure/waste handling or nutrient management restrictions associated with each land application field
- The soil type(s) present and their locations within the individual land application field(s)
- The location of buffers and setbacks around state surface waters, well heads, etc.

Land Application Equipment Calibration

Describe the type of equipment used to land apply wastes and the calibration procedures:

custom hire solid spreader. Applicator will determine calibration procedures.

Manure Sampling and Analysis Procedures

A representative manure sample will be analyzed a minimum of once annually for Total Nitrogen, and Total Phosphorus. Analysis results will be reported in lbs/ton or lbs/1,000 gal. Results of these analyses will be used in determining rates for manure, litter, and process wastewater.

Manure Sample collection will occur according to ARM 17.30.1334

Other (describe)

Soil Sampling and Analysis Procedures

Representative soil (composite) samples from the top 6 inches layer of soil for each field where manure will be applied must be analyzed for phosphorus content at least once every three years. Analyses will be conducted by a qualified laboratory, using the Olsen P test. Results will be reported in parts per million (ppm) and will be used in determining application rates for manure, litter, and process wastewater

Soil samples collection will occur according the methods in ARM 17.30.1334

Other (describe)

Phosphorus Risk Assessment

The permittee shall assess the risk of phosphorus contamination of state waters. An assessment shall be conducted for each field, under the control of the operator, to which manure, litter or process wastewater will or

may be applied. If a new field is added in the future, then the permittee must submit a revised (modified) NMP. The permittee has the option of using Method A or Method B (below) to complete the assessment. Copies of all tables and calculations used to complete the assessments, as well as the results of the assessments, shall be submitted to the Department and copies shall be maintained on-site at the facility and available for Departmental review. The results of the assessments shall be used to determine the appropriate basis for land application of wastes from the facility.

Method Used

Indicate which method will be used to determine phosphorus application:

Method A – Representative Soil Sample

Method B – Phosphorus Index

Method A – Representative Soil Sample

- Obtain one or more representative soil sample(s) from the field per 17.30.1334
- Have the sample analyzed for Phosphorus by a qualified lab. The "Olsen P test" must be used for the analysis, and the result must be reported in parts per million (ppm)
- Using the results of the Olsen P test, determine application basis according to the Table below.

Soil Test

Olsen P Soil Test Results (ppm)	Application Basis
<25.0	Nitrogen Needs of Crop
25.1 - 100.0	Phosphorus Needs of Crop
100.0 – 150.0	Phosphorus Needs up to Crop Removal Rate
>150.0	No Application allowed

Method B – Phosphorus Index

- Complete a phosphorus Index according to the crop grown on each field. Complete table in Appendix A to calculate phosphorus index. For information on filling out specific sections in Appendix A, please refer to the method as described in Natural Resource Conservation Service (NRCS), Agronomy Technical Note MT-77 (rev3), January 2006.
- Using the calculated Total Phosphorus Index Value, assign the overall site/field vulnerability to phosphorus loss according to the table below.

Total Phosphorus

Total Phosphorus Index Value	Site Vulnerability to Phosphorus Loss
<11	Low
11-21	Medium
22-43	High
>43	Very High

- Using the calculated Site Vulnerability to Phosphorus Loss, determine the appropriate application basis according to the table below.

Site Vulnerability to Phosphorus Loss	Application Basis
Low	Nitrogen Needs
Medium	Nitrogen Needs
High	Phosphorus Need Up to Crop Removal
Very High	Phosphorus Crop Removal or No Application

The applicant has 2 ways in which to report how manure or process wastewater application rates can be reported to DEQ.

1. Linear Approach. Expresses rates of application as pounds of nitrogen and phosphorus. CAFOs selecting the linear approach to address rates of application must include in the NMP submitted to the permitting authority the following information for each crop, field, and year covered by the NMP, which will be used by the permitting authority to establish site-specific permit terms:

- The maximum application rate (pounds/acre/year of nitrogen and phosphorus) from manure, litter, and process wastewater.
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. [If a state does not have an N transport risk assessment, the NMP must document any basis for assuming that nitrogen will be fully used by crops.] The CAFO must specify any conservation practices used in calculating the risk rating.
- The crops to be planted or any other uses of a field such as pasture or fallow fields.
- The realistic annual yield goal for each crop or use identified for each field.
- The nitrogen and phosphorus recommendations from in ARM 17.30.1334 (technical standard) for each crop or use identified for each field.
- Credits for all residual nitrogen in each field that will be plant-available.
- Consideration of multi-year phosphorus application. For any field where nutrients are applied at a rate based on the crop phosphorus requirement, the NMP must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement.
- All other additions of plant available nitrogen and phosphorus (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen).
- The form and source of manure, litter, and process wastewater to be land-applied.
- The timing and method of land application. The NMP also must include storage capacities needed to ensure adequate storage that accommodates the timing indicated.
- The methodology that will be used to account for the amount of nitrogen and phosphorus in the manure, litter, and wastewater to be applied.
- Any other factors necessary to determine the maximum application rate identified in accordance with this Linear Approach.

2. Narrative Rate Approach. Expresses a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied. CAFOs selecting the narrative rate approach to address rates of application must include in the NMP submitted to the permitting authority the following information for each crop, field, and year covered by the NMP, which will be used by the permitting authority to establish site-specific permit terms:

- The maximum amounts of nitrogen and phosphorus that will be derived from all sources of nutrients (pounds/acre for each crop and field).
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. The CAFO must specify any conservation practices used in calculating the risk rating.
- The crops to be planted in each field or any other uses of a field such as pasture or fallow fields, including alternative crops if applicable. Any alternative crops included in the NMP must be listed by field, in addition to the crops identified in the planned crop rotation for that field.
- The realistic annual yield goal for each crop or use identified for each field for each year, including any alternative crops identified.
- The nitrogen and phosphorus recommendations from *[the permitting authority to specify acceptable sources]* for each crop or use identified for each field, including any alternative crops identified.
- The methodology (including formulas, sources of data, protocols for making determination, etc.) and actual data that will be used to account for: (1) the results of soil tests required by Parts II.A.4.b and III.A.3.g of this

permit, (2) credits for all nitrogen in the field that will be plant- available, (3) the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied, (4) consideration of multi-year phosphorus application (for any field where nutrients are applied at a rate based on the crop phosphorus requirement, the methodology must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement), (5) all other additions of plant available nitrogen and phosphorus to the field (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen), (6) timing and method of land application, and (7) volatilization of nitrogen and mineralization of organic nitrogen.

- Any other factors necessary to determine the amounts of nitrogen and phosphorus to be applied in accordance with the Narrative Rate Approach.

- NMPs using the Narrative Rate Approach must also include the following projections, which will not be used by the permitting authority in establishing site-specific permit terms:

- i. Planned crop rotations for each field for the period of permit coverage.

- ii. Projected amount of manure, litter, or process wastewater to be applied.

- iii. Projected credits for all nitrogen in the field that will be plant-available.

- iv. Consideration of multi-year phosphorus application.

- v. Accounting for other additions of plant-available nitrogen and phosphorus to the field.

- vi. The predicted form, source, and method of application of manure, litter, and process wastewater for each crop

- If the receiving water is on the 303(d) list for nutrients then the narrative rate approach must be used.

- a. For the Linear Approach the permittee will complete the Nutrient Budget Worksheet, below, for the next 5 years to which manure or process waste water is or may be applied. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

See Appendix A for Details on Land Treatment

Section F - CERTIFICATION

Permittee Information: This form must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print)

Jason J Swartz

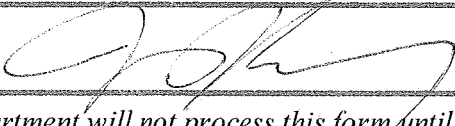
B. Title (Type or Print)

Owner

C. Phone No.

406-473-2462

D. Signature



E. Date Signed

2/3/15

The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form and the applicable fee to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

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DEQ/WPB
PERMITTING & COMPLIANCE DIV.

INSTRUCTION FOR Form NMP – Nutrient Management Plan Associated With Concentrated Animal Feeding Operations

You may need the following items in order to complete this form: A copy of your most recently submitted NOI-CAFO: United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), No. 80.1 Nutrient Management, Agronomy Technical Note MT-11 (revision 3), January 2006; Montana State University Extension Service Publication 161, Fertilizer Guidelines for Montana Crops; United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Sampling Soils for Nutrient Management – Manure Resource, MT 04/07; Montana State University, Mont Guide, Interpretation of Soil Test Reports for Agriculture, MT200702AG, July, 2007; United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Conservation Practice Standard, Code 590 (November 2006) and Waste Utilization, Code 633 (August 2000).

Please type or print legibly; forms that are not legible will be considered incomplete.

SPECIFIC ITEM INSTRUCTIONS

Section A – NMP Status:

Check the box that applies and provide the requested information. If the Form NMP has not been previously submitted for this site, check the first box (New). If you submitted a FORM NMP and the department found it to be incomplete, check the second box (Resubmitted);

If you were notified by the Department that the permit coverage expired and you are now submitting and updated Form NMP, check the third Box (Modification). If you have received a deficiency letter in regard to your NMP application the facilities assigned designation will be noted in the RE: line starting with MTG#####. If the site is covered under *the General Permit for Concentrated Animal Feeding Operation*, the number is given on the Authorization letter sent to you by the Department. The permit number must be included on any correspondence with the Department regarding this site.

Section B – Facility Information:

The information must be stated exactly the same way as it was stated on the most recently submitted version of your form NOI-CAFO.

Section C – Applicant (Owner/Operator) Information:

The information must be stated exactly the same way as it was stated on the most recently submitted version of your form NOI-CAFO.

Section D – Waste Management Minimum Elements:

1. Livestock Statistics: Identify each type of animal confined at this facility. The definition of “type” could include animals of a given species, animals of a given weight class (e.g. piglets, sows), or animals housed for a specific purpose (e.g. dry cows, milking cows).

Chemicals and Contaminants. List all major chemicals or other contaminants handled on site as part of your CAFO operation. This would include, but not limited to, pesticides, herbicides, animal dips, disinfectants, etc. Specify the method of disposal for each chemical/contaminant.

7. **Best Management Practice (BMPs).** Describe the BMPs used to control runoff of pollutants from the production area, and land application area. Please note that “production area” means that part of a CAFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The “animal confinement area” includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, animal walkways, and stables. The “manure storage area” includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The “raw material storage area” includes but is not limited to feed silos, silage bunkers, and bedding materials. The “waste containment area” includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities. If you transfer all of the wastes your CAFO produces, and do not land apply any of it to ground under your operational control, then you will not have any land application area BMPs to describe.

Section E – Land Application:

If all of the manure produced at your facility will be transferred to other persons for use in areas beyond your operational control, then you do not need to provide the information requested in Section E. of this form.

Photos and/or maps:

Manure /waste handling and nutrient management restrictions that must be on the photo/map include buffers and setbacks around state surface waters, well heads, etc.

Nutrient Management and Waste Utilization via Land Application:

The purpose for having two options is to allow the producer to make use of the valuable technical assistance provided by the USDA’s Natural Resources Conservation (NRCS), if you should desire.

Land Application Equipment Calibration:

Land application equipment calibration is essential to ensuring that nutrients are being applied at agronomic rates. Please provide specific information on how equipment will be calibrated. The CAFO shall maintain the supporting documentation on site and shall make this information available to DEQ upon request.

Manure sampling and Analysis: Manure must be sampled per ARM 17.30.1334.

When sending manure or soil samples to a laboratory for analysis, it is your responsibility to make sure that the lab uses the correct sampling procedures. Approved Laboratories can be found in Montana State University Extension Service Publication 4449-1, Soil Sampling and Laboratory Selection, June 2005. Before you take any samples, talk to the lab that you intend to use. Ask them if they have specific instructions in order to help ensure

Appendix A. Land Treatment

- Narative Summary of NMP**
- Soil and Manure Tests**
- Land Maps**
- Nutrient Budget Worksheets**
- P-Index**

Section E. Land Treatment

Summary

Solid manure on the S & G Livestock Facility will be mounded in the open lots and applied in the fall of the year, typically September. Manure volume will vary depending on precipitation, animal numbers, and bedding used. The operation has sufficient acreage to apply all manure annually. Transfers of manure will not be necessary.

Soil samples are taken in accordance with the methods described in ARM 17.30.1334 by a local agronomy firm, and manure samples are taken in accordance to ARM 17.30.1334 by the producer.

Solid manure is not applied in sensitive areas or near well heads. A 100' buffer is shown to be around permanent and intermittent surface waters as well as prominent waterways. See maps following this summary.

In this Nutrient Management Plan, manure is applied to available land nearest the feedlot. Crop rotations consist of grass hay, oats-pea-barley hay, grain corn, pasture, and alfalfa. Fields not in alfalfa are eligible for manure applications. Currently, the operation has approximately 5,070.4 manure spreadable acres. Using the manure volume based on DEQ 9 calculations, (~6,279 tons) and the lowest application rate (~5.7 tons/acre) it would take approximately 1,102 acres per year to utilize manure nutrients. This will vary depending on crop applied to and nutrient needs based on current soil tests, and current manure tests. When manure applications are rotated between fields annually, manure nutrients will be utilized most efficiently and will not build up beyond manageable levels.

Oat-Pea-Barley hay was not used for manure application in the year 2015 in this plan. Depending on soil test levels of nitrogen, small amounts of N can be applied to this crop and be beneficial. (Fertilizer Guide for MT Crops)

A nutrient budget has been done for the crop year 2015, with applications being done in the fall of 2014. It is recommended that manure applications be rotated annually, and applied to different fields each year. An exception would be for a corn on corn rotation, which will utilize the nutrients more efficiently and less likely cause nutrient build up beyond manageable levels. All fields have a P-Index rating of Medium, which means they can have manure applied to at crop's nitrogen needs. It is important not to over-apply manure to reduce the risk of nitrate leaching.

Manure will be incorporated as soon as reasonably possible on rotated cropland fields, preferably within 3 days of application. This will allow for maximum N availability from manure and reduce volatilization. Permanent hay or pasture applications will be surface broadcast at a low application rate to reduce runoff and maintain grass regrowth potential.

It is important to update nutrient management plans annually with current manure and soil tests. Records of these updates must be kept by the producer (Jason Swanz) at all times. The producer is advised to keep records of applications, including applicators statement of calibration as well as where manure was applied. Other records including mortality disposals and crop production records are also advised to be in the producers possession at all times.

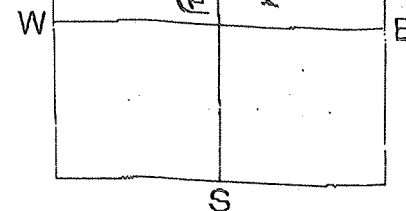
Soil and Manure Analyses



SOIL TEST REPORT

P.O. BOX 310, NORTHWOOD, ND 58207
(701) 567-6919

FIELD # 5, LITTLE CARELESS CREEK SAMPLE #4
COUNTY Hay Meadows
TWP up Little Careless Creek
QTR SECTION
PREV CROP GRAIN/ALFALFA ACRES



SUBMITTED FOR:

JASON SWANE

SUBMITTED BY:

MOORE FARMERS OIL
115 PERDUE AVE
BOX 120
MOORE, ND 58464

REF # 14746355
LAB # 153177

BOX # 2359

DATE SAMPLED

11/27/13

DATE RECEIVED

12/5/13

DATE REPORTED

12/11/13

NUTRIENT IN THE SOIL	INTERPRETATION				1ST CROP CHOICE	2ND CROP CHOICE	3RD CROP CHOICE
	V. LOW	LOW	MED.	HIGH	SEEDS/ALFALFA		
0-6" 6 lb/ac					YIELD GOAL 1 TONS	YIELD GOAL	YIELD GOAL
					SUGGESTED GUIDELINES	SUGGESTED GUIDELINES	SUGGESTED GUIDELINES
					BROADCAST/BUILD		
Nitrate N					LB/ACRE APPLICATION	LB/ACRE APPLICATION	LB/ACRE APPLICATION
Green phosphorus 12 ppm					N 10	N	N
Potassium 234 ppm					P ₂ O ₅ 10 Broadcast	P ₂ O ₅	P ₂ O ₅
Chloride					K ₂ O	K ₂ O	K ₂ O
Sulfur 0-6" 10 lb/ac					Cl	Cl	Cl
Boron 1.1 ppm					S 10 Broadcast/Trial	S	S
Zinc 1.05 ppm					B 0	B	B
					Zn 0	Zn	Zn
					Fe	Fe	Fe
Manganese					Mn	Mn	Mn
Copper					Cu	Cu	Cu
Magnesium 506 ppm					Mg 0	Mg	Mg
Sodium 21 ppm					Lime 0.0	Lime	Lime
Organic Matter 4.5 %							
Carbonate (CCE) 1.03 meq/100 g							
Soil pH 7.8							
Buffer pH							
Cation Exchange Capacity 31.0 meq/100 g							
% Base Saturation (Typical Range)							
% Ca 24.2							
% Mg 13.7							
% K 1.9							
% Na 0.3							
% H 0.3							

SOIL NITROGEN LEVEL IS ESTIMATED: CRAP 1 + 20

Estimated Texture = Texture is not estimated on high pH soils.

CRAP REMOVAL CRAP 17 POUND 20 TONS 10

ADVISE Broadcast guidelines will build P & K test levels to the high range over several years.

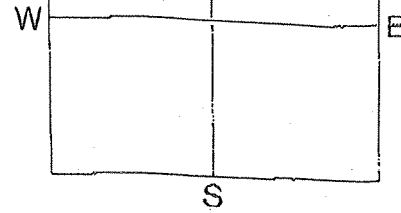
4, 7, 8



811 BOY ST, NORTHWOOD, NH 05267
(603) 857-5019

SOIL TEST REPORT

FIELD NO 5 PLOT 5 HALF SAMPLE NO
COUNTY
TWP
QTR
PREV CROP
Old Pivot South Half
SECTION
ACRES



SUBMITTED FOR:

JASON SWARTZ

SUBMITTED BY:

MOORE FARMERS OIL
115 FERDUS AVE
BOX 120
MOORE, NH 03244

NO1608

REF # 14748335
LAB # 123173

BOX # 2339

DATE SAMPLED 11/07/17

DATE RECEIVED 11/5/17

DATE REPORTED 12/5/17

NUTRIENT IN THE SOIL	INTERPRETATION				1ST CROP CHOICE		2ND CROP CHOICE		3RD CROP CHOICE	
	LOW	LOW	MED	HIGH	ALFALFA					
0-6" 15/20					YIELD GOAL 5 TONS		YIELD GOAL		YIELD GOAL	
ate N					SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES	
					BROADCAST/BUILD					
					LB/ACRE APPLICATION		LB/ACRE APPLICATION		LB/ACRE APPLICATION	
					N 1		N		N	
Phosphorus 10 ppm					P ₂ O ₅ 75 Broadcast		P ₂ O ₅		P ₂ O ₅	
assium 235 ppm					K ₂ O 37 Broadcast		K ₂ O		K ₂ O	
ide					Cl		Cl		Cl	
Sulfur 0-6" 14 15/20					S 15 Broadcast, Trial		S		S	
on 1.1 ppm					B 1 Broadcast		B		B	
inc 0.65 ppm					Zn 2 Broadcast		Zn		Zn	
					Fe		Fe		Fe	
Manganese					Mn		Mn		Mn	
Copper					Cu		Cu		Cu	
Magnesium 149 ppm					Mg 0		Mg		Mg	
cium 3622 ppm					Lime 0.0		Lime		Lime	
Sodium 29 ppm										
Organic Matter 4.0 %										
onate (CCE) 1.41 percentage										
uble 0-6" 1.41 percentage										
ts										

Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
% Ca	% Mg	% K	% Na	% H			
0-6" 7.3		33.2 cec	25-75	15-25	1-7	10-5	10-5
			25.3	9.3	1.3	0.4	

SOIL NITROGEN LEVEL IS ESTIMATED. CROP 1 = 14

NITROGEN CREDITS GRANTED: CROP 1 = 50 CREDITS MAY NEED TO BE ADJUSTED BASED ON LOCAL CONDITIONS.

ESTIMATED NUTRIENT = NUTRIENT IS NOT ESTIMATED ON HIGH PH SOILS.

Crop Removal: Crop 1: 2203- 50 222-230

AGRIWISE BROADCAST GUIDELINES WILL GUIDE P & K TEST LEVELS TO THE RIGHT RANGE OVER SEVERAL YEARS.

29



P.O. BOX 510, NORTHWOOD, ND 58203
(701) 537-4010

FIELD #0 8 PIVOT

COUNTY

TWP

QTR

PREV CROP

SAMPLE

SECTION

ACRES

New Pivot

W

E

S

SUBMITTED FOR:

JASON SROX

SUBMITTED BY:

MOORE FARMERS OIL

117 PEARSON AVE

BOX 120

MOORE, MT

59424

REF # 14746567

LAB # 153196

BOX # 2336

DATE SAMPLED

11/27/13

DATE RECEIVED

12/1/13

DATE REPORTED

12/1/13

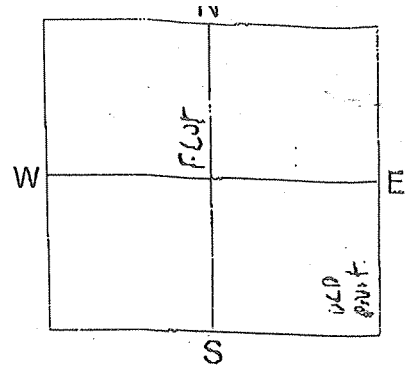
NUTRIENT IN THE SOIL		INTERPRETATION				1ST CROP CHOICE		2ND CROP CHOICE		3RD CROP CHOICE	
		V. LOW	LOW	MED	HIGH	GRAIN CORN					
0-4"		32 lb/ac				YIELD GOAL 121.50		YIELD GOAL		YIELD GOAL	
4-24"		30 lb/ac				SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES	
0-24"		95 lb/ac				2RND					
Nitrate N						LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION
N						N	35	N		N	
Phosphorus		10 ppm				P ₂ O ₅	20 Band 1	P ₂ O ₅		P ₂ O ₅	
Potassium		300 ppm				K ₂ O	10 Band (2x2) 1	K ₂ O		K ₂ O	
Sulfur						Cl		Cl		Cl	
0-4"		15 lb/ac				S	0 Band (Trials)	S		S	
4-24"		40 lb/ac				B	0	B		B	
Zinc		1.3 ppm				Zn	2 Band	Zn		Zn	
Iron		0.74 ppm				Fe	0	Fe		Fe	
Manganese		0.6 ppm				Mn	0	Mn		Mn	
Copper		0.65 ppm				Cu	0	Cu		Cu	
Magnesium		0.10 ppm				Mg	0	Mg		Mg	
Sodium		0.74 ppm				Lime	0.0	Lime		Lime	
Organic Matter		0.0									
Carbonate (CCE)		0.0									
pH		0.0									
0-4"		0.42									
4-24"		0.42									



P.O. BOX 510, NORTHWOOD, ND 58207
(701) 567-6010

SOIL TEST REPORT

FIELD #1-E PILOT-1/2 HALF IRRIGATED SAMPLE #2
COUNTY *Old Pivot*
TWP *South Half* SECTION
QTR *North* ACRES
PREV CROP



SUBMITTED FOR:

MOORE FARMS

SUBMITTED BY:

MOORE FARMS INC.
115 PEARSON AVE
BOX 134
MORRIS, MT 59404

REF # 1746597
LAB # 153174

BOX # 2503

DATE SAMPLED

11/20/13

DATE RECEIVED

12/3/13

DATE REPORTED

12/3/13

NUTRIENT IN THE SOIL		INTERPRETATION				1ST CROP CHOICE		2ND CROP CHOICE		3RD CROP CHOICE	
		V. LOW	LOW	MED	HIGH	GRAIN CROPS					
0-8"	33 lb/ac					YIELD GOAL	125 bu	YIELD GOAL		YIELD GOAL	
8-24"	57 lb/ac					SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES	
0-24"	90 lb/ac					SAND					
Nitrate N						LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION
						N	11	N		N	
Dissolved Phosphorus	11 ppm					P ₂ O ₅	34 Band 3	P ₂ O ₅		P ₂ O ₅	
Potassium	179 ppm					K ₂ O	11 Band 1	K ₂ O		K ₂ O	
Sulfur	2 ppm					Cl		Cl		Cl	
0-8"	2 lb/ac					S	7 Band (trial)	S		S	
8-24"	19 lb/ac					B	0	B		B	
Boron	1.5 ppm					Zn	2 Band	Zn		Zn	
Zinc	0.75 ppm					Fe	0	Fe		Fe	
Copper	3.7 ppm					Mn	0	Mn		Mn	
Manganese	2.0 ppm					Cu	0	Cu		Cu	
Silica	0.02 ppm					Mg	0	Mg		Mg	
Magnesium	300 ppm					Lime	0.0	Lime		Lime	
Calcium	3900 ppm										
Sodium	10 ppm										
Organic Matter	4.5 %										
Carbonate (CCE)	0.34 meq/100g										
Acid Sulfate	0.30 meq/100g										

Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
			% Ca	% Mg	% K	% Na	% H
5-6	5.5	33.0 meq	10-15	10-20	1-2	10-15	10-15
6-7	6.5		10-15	5-10	1-2	10-15	10-15

* CAUTION: SEED PLACED FERTILIZER CAN CAUSE INJURY *

In no-till or very reduced tillage systems, an additional 30 lbs/ac of nitrogen may increase corn yield.

Estimated texture = texture is not estimated on high pH soils.

Drop Removal: Drop 1: P205 = 50 P205 = 34

REVISE Band guidelines with build up of test levels to the medium range over many years.

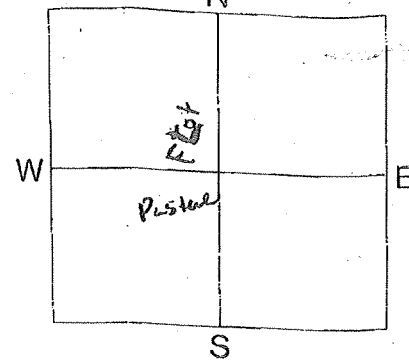
43



410 BOX 510, NORTHWOOD, VT 05701
(703) 897-8010

SOIL TEST REPORT

FIELD 55 S. FEEDLOT SAMPLE 25
COUNTY South of Feedlot
TWP Pasture SECTION
QTR ACRES
PREV CROP GRASS/PASTURE



SUBMITTED FOR:

JASON SWARTZ

SUBMITTED BY:

MOORE FARMERS JR.
115 PERGUS AVE
BOX 120
MOORE, VT 05454

REF # 14744535
LAB # 183178

BOX # 1201

DATE SAMPLED 11/27/12

DATE RECEIVED 12/5/12

DATE REPORTED 12/5/12

NUTRIENT IN THE SOIL		INTERPRETATION				1ST CROP CHOICE		2ND CROP CHOICE		3RD CROP CHOICE	
		LOW	LOW	MED	HIGH						
Nitrogen	16 lb/ac					N	44	N		N	
Phosphorus	9 ppm					P ₂ O ₅	15 Broadleaf	P ₂ O ₅		P ₂ O ₅	
Potassium	427 ppm					K ₂ O	6	K ₂ O		K ₂ O	
Sulfur	10 lb/ac					S	16 Broadcast/Fertil	S		S	
Calcium						B		B		B	
Magnesium	1.70 ppm					Zn		Zn		Zn	
Iron						Fe		Fe		Fe	
Manganese						Mn		Mn		Mn	
Copper						Cu		Cu		Cu	
Zinc						Mg		Mg		Mg	
Lime						Lime	0.0	Lime		Lime	
Organic Matter	4.5 %										
Carbonate (CCE)	0.45 mbw/cd										
Soluble Salts	0.35 mbw/cd										
						Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)		
						0-5" 7.8		32.1 meq	% Ca	% Mg	% K
						6-24" 8.1			58.3	7.4	3.2
										0.2	

Estimated texture = texture is not estimated on high or soils.

Crop Removal: Crop 1: P103= 24 K2O= 90

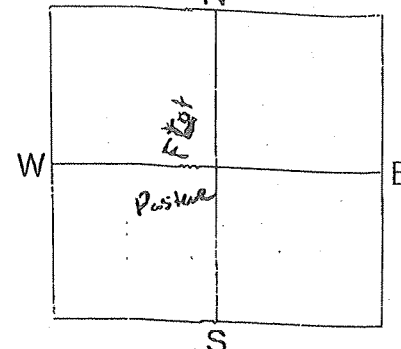
ADVISE broadcast guidelines will build P & K test levels to the high range over several years.

#9



SOIL TEST REPORT

FIELD # 5 FEEDLOT SAMPLE # 5
COUNTY *South of Feedlot*
TWP *Pasture* SECTION
QTR ACRES
PREV CROP *GRASS/PASTURE*



SUBMITTED FOR:

JASON SWANE

SUBMITTED BY:

MOORE FARMERS OIL
115 PONDUR AVE
BOX 110
MOORE, NT
39424

REF # 14745559
LAB # 153175

BOX # 1107

DATE SAMPLED 11/27/02

DATE RECEIVED 12/ 6/02

DATE REPORTED 12/ 7/02

NUTRIENT IN THE SOIL		INTERPRETATION				1ST CROP CHOICE		2ND CROP CHOICE		3RD CROP CHOICE	
		V. LOW	LOW	MED	HIGH	37455/PASTURE					
0-6"	10/20					YIELD	GOAL 2 TONS	YIELD	GOAL	YIELD	GOAL
6-24"	10/20					SUGGESTED GUIDELINES		SUGGESTED GUIDELINES		SUGGESTED GUIDELINES	
0-24"	10/20					BROADCAST/BUILD					
Ammonia N						LB/ACRE	APPLICATION	LB/ACRE	APPLICATION	LB/ACRE	APPLICATION
0-6"	10/20					N	44	N		N	
6-24"	10/20					P ₂ O ₅	15 Broadcast	P ₂ O ₅		P ₂ O ₅	
0-6"	10/20					K ₂ O	0	K ₂ O		K ₂ O	
6-24"	10/20					Cl		Cl		Cl	
0-6"	10/20					S	10 Broadcast	S		S	
6-24"	10/20					B		B		B	
0-6"	10/20					Zn	0	Zn		Zn	
6-24"	10/20					Fe		Fe		Fe	
0-6"	10/20					Mn		Mn		Mn	
6-24"	10/20					Cu		Cu		Cu	
0-6"	10/20					Mg	0	Mg		Mg	
6-24"	10/20					Lime	0.0	Lime		Lime	
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MANURE NUTRIENT ANALYSIS REPORT



AgSource
Laboratories

A Subsidiary of Cooperative Resources International

AGSOURCE LABORATORIES

106 N. CECIL STREET

BONDUEL, WI 54107

PHONE (715)758-2178 FAX (715)758-2620

ANALYSIS FOR: Swanz

DATE PROCESSED: 11/25/2013

ACCT: 084

DATE SAMPLED: / /

K2S ENGINEERING INC

SAMPLE NUMBER: 24095

4209 94TH AVE SE

MATERIAL: Beef

YPSILANTI, ND 58497

STORAGE SYSTEM: SOLID

SAMPLE ID: Swanz

DRY MATTER, % 38.60

MOISTURE, % 61.40

Nitrogen:
(> 72h or Not Inc)

Nitrogen:
(Inc in 1 to 72h)

Nitrogen:
(Inc within 1h or Inj)

Phosphorus as P₂O₅

Potassium as K₂O

Sulfur

Estimated Value of
Available Nutrients

Estimated Available Nutrient Credits

Total Nutrients lbs/ton	In 1st Year of Application lbs/ton	If Applied 2 Consecutive Yrs lbs/ton	If Applied 3 Consecutive Yrs lbs/ton
15.00	3.75	1.50	0.75
15.00	4.50	1.50	0.75
15.00	5.25	1.50	0.75
10.25	8.20	0.00	0.00
27.33	21.86	0.00	0.00
3.01	1.66	0.30	0.15
	\$15.80	\$0.74	\$0.37

MINOR ELEMENTS *3

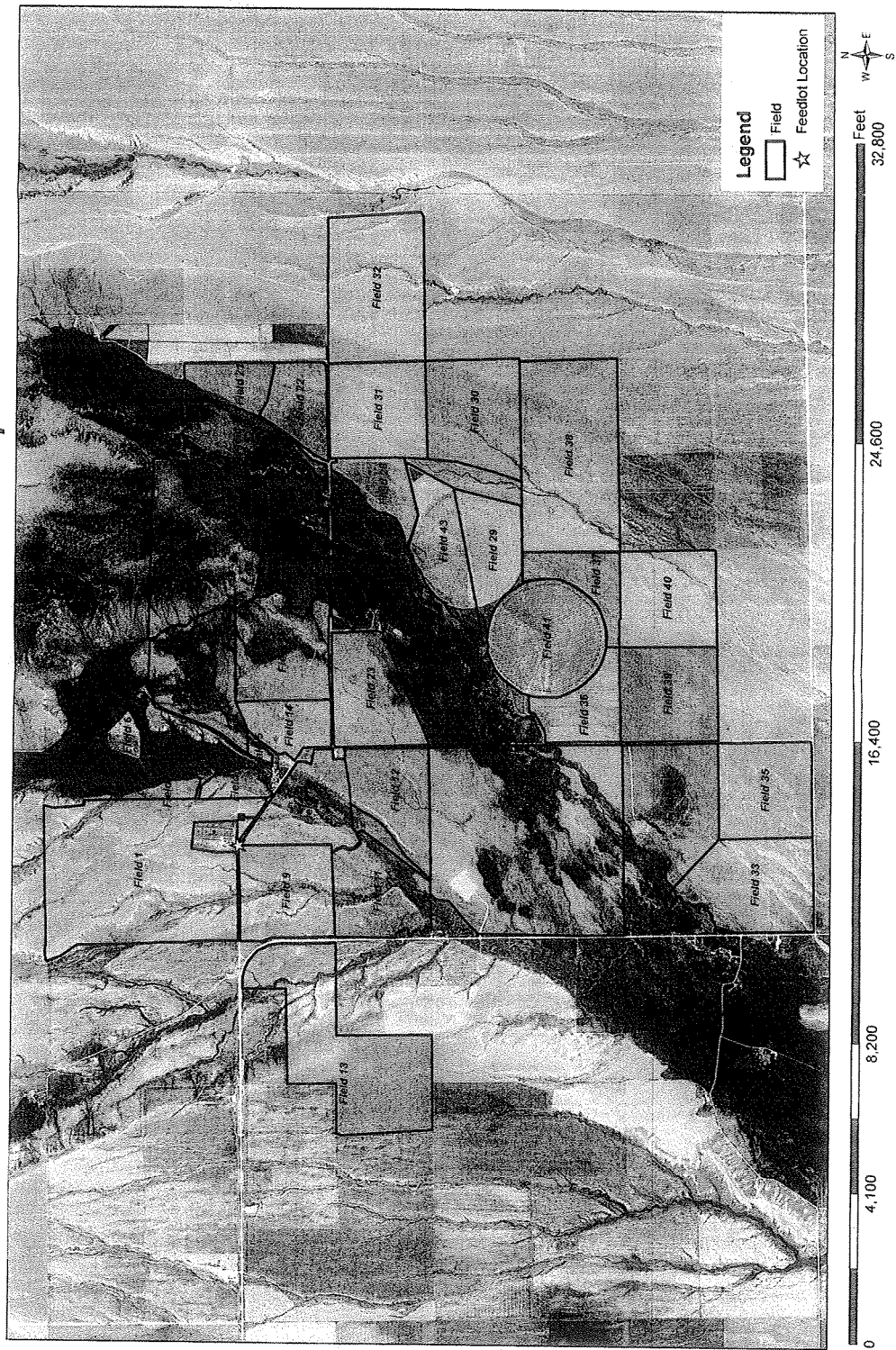
Calcium: N/R	Zinc: N/R	NH4-N: 0.006%
Magnesium: N/R	Manganese: N/R	NO3-N: 0.00400%
Copper: N/R	Sodium: N/R	
Iron: N/R		

COMMENTS:

- **1 Applications of manure on the same field for 2 consecutive years increases the availability of N and S by 10%, and for 3 or more consecutive years by 15%. There is zero availability on P and K for 2 or more consecutive years. Availability of N changes depending on application technique. Injection or incorporation within 3 days of application results in higher N availability.
- *2 Value based on commercial fertilizer costs as of 10/28/2013.
N (Urea) \$0.44/lb, P₂O₅ (Triple Superphosphate) \$0.55/lb, K₂O (Potash) \$0.39/lb, S (Elemental Sulfur) \$0.27/lb.
- *3 If minor elements are requested, they are reported on a 'dry matter' basis. If ammonia, nitrate or pH are requested, they are reported on an 'as is' basis.
- **References: Nutrient application guidelines for field, vegetable, and fruit crops in Wisconsin (A2809), Table 9.1

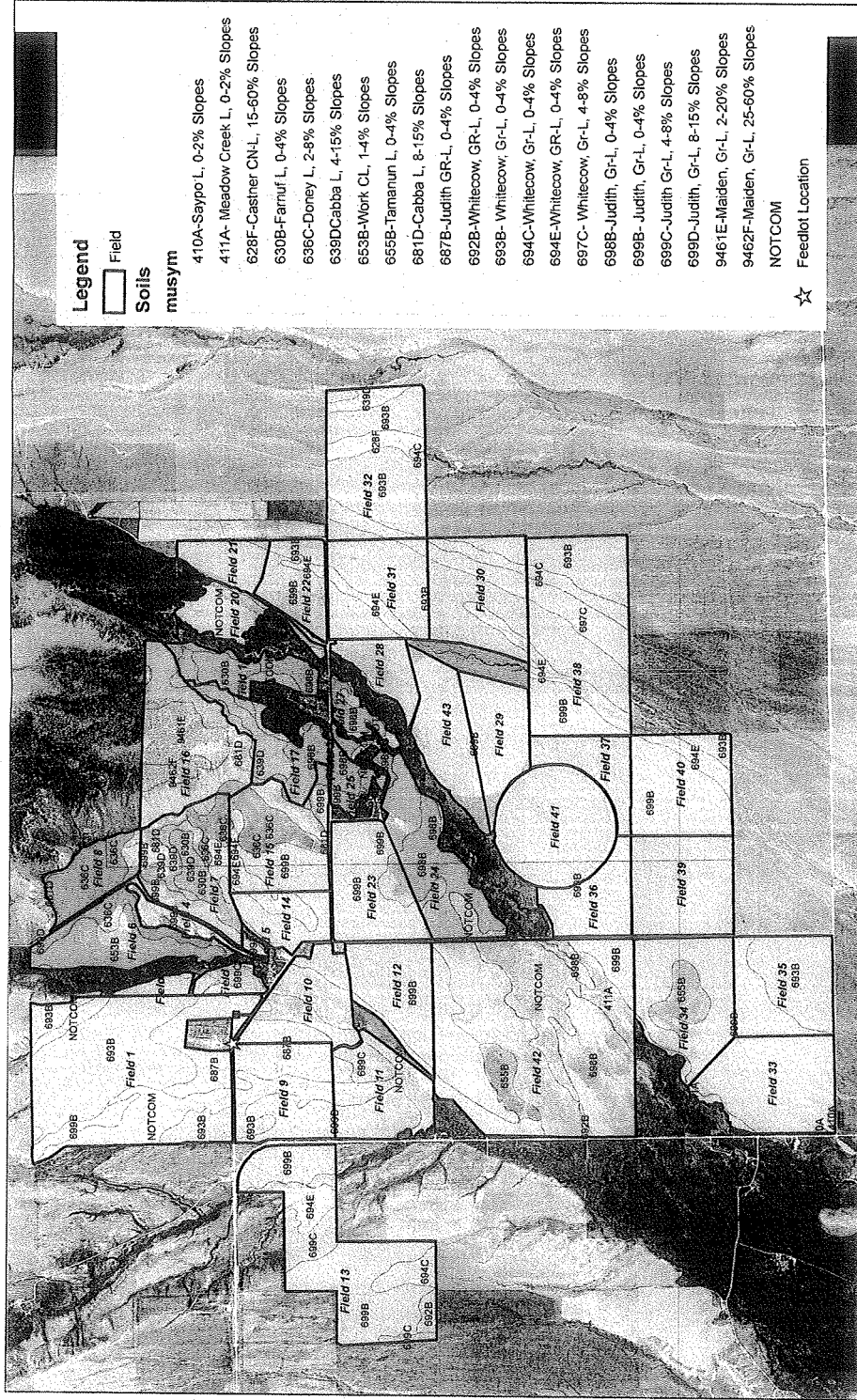
Land Maps and Field Nutrient Budgets

S & G Livestock: Field Overview Map



S & G Livestock: Field Overview Map

S & G Livestock: Soils Map



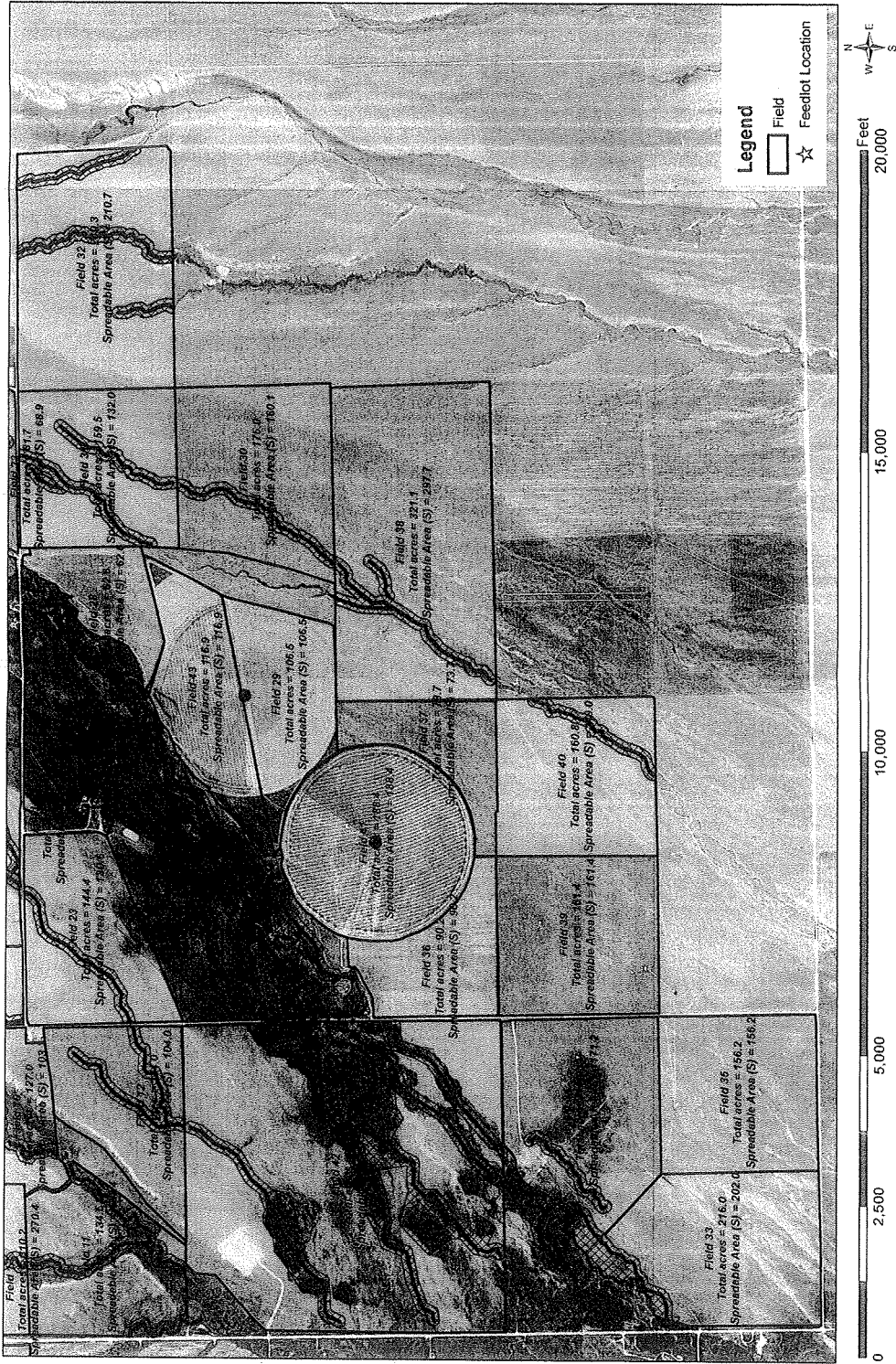
S & G Livestock: Soils Map

S & G Livestock: Field Setbacks Map



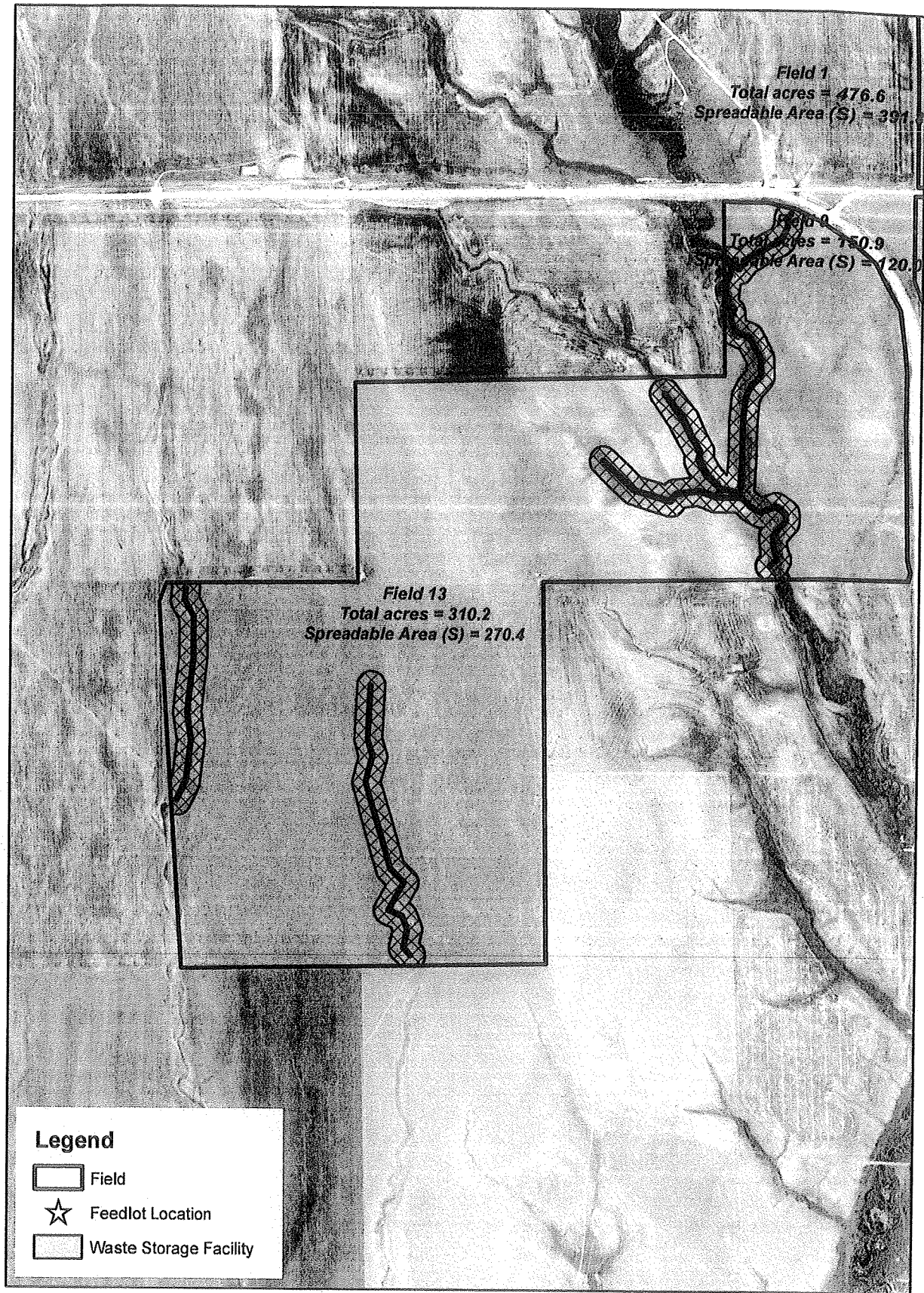
S & G Livestock: Field Setbacks Map

S & G Livestock: Field Setbacks Map



S & G Livestock: Field Setbacks Map

Field 13 Setbacks Map



Nutrient Budget Worksheet

Field identification: 1		Year: 2014	Crop: Grass Hay		
Expected Crop Yield: 2 tons					
Phosphorus index results or Phosphorus application from soil test: 15 Medium					
Method of Application: Solid, Broadcast					
When will application occur: Fall (Sept - Oct) or early Spring if conditions allow					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	50		MT Fertilizer
2	(-)	Credits from previous legume crops, lbs/ac	-		
3	(-)	Residuals from past manure production lbs/acre	7		Soil Test N
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	-		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	-		
6		= Additional Nutrients Needed, lbs/acre	43		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	15		Manure Test
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	.5		N availability cal.
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	7.5		
10		Additional Nutrients needed, lbs/acre (calculated above)	43		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.5		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	5.7 tons / acre		

Comments:

At this rate, ~2,233.3 tons are applied to ~391.8 manure spreadable acres. This rate applies P at ~58.4 lbs per acre. Rotating fields receiving manure is recommended to ensure nutrients are not built up beyond manageable levels.

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: 1		Crop: Pasture		Year: 2015				
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	0	X 1.5	0
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	0	X 1.0	0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	0	X 1.0	0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	8	X 1.0	8
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	4	X 1.0	4
Total Phosphorus Index Value: 15 Medium								

Nutrient Budget Worksheet

Field identification: 7		Year: 2014	Crop: Grass Hay	
Expected Crop Yield: 2 tons				
Phosphorus index results or Phosphorus application from soil test: 15 Medium				
Method of Application: Solid, Broadcast				
When will application occur: Fall (Sept - Oct) or early Spring if conditions allow				
Nutrient Budget		Nitrogen-based Application	Phosphorus-based Application	Source of information
1	Crop Nutrient Needs, lbs/acre	50		MT Fertilizer
2	(-) Credits from previous legume crops, lbs/ac	-		
3	(-) Residuals from past manure production lbs/acre	6		Soil Test N
4	(-) Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	-		
5	(-) Nutrients supplied in irrigation water, lbs/acre	-		
6	= Additional Nutrients Needed, lbs/acre	44		
7	Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	15		Manure Test
8	(x) Nutrient Availability factor, for Phosphorus based application use 1.0	.5		N availability cal.
9	= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	7.5		
10	Additional Nutrients needed, lbs/acre (calculated above)	44		
11	(/) Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.5		
12	= Manure Application Rate, tons/acre or 1000 gal/acre	5.9 tons / acre		

Comments:

At this rate, ~664.3 tons are applied to ~112.6 manure spreadable acres. This rate applies P at ~60.5 lbs per acre. Rotating fields receiving manure is recommended to ensure nutrients are not built up beyond manageable levels.

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: 7		Crop: Grass Hay		Year: 2015				
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	0	X 1.5	0
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	2	X 0.5	1
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	0.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	0	X 1.0	0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	0	X 1.0	0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	8	X 1.0	8
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	4	X 1.0	4
Total Phosphorus Index Value: 15.5 Medium								

Nutrient Budget Worksheet

Field identification: 8		Year: 2014	Crop: Grass Hay	
Expected Crop Yield: 2 tons				
Phosphorus index results or Phosphorus application from soil test: 15 Medium				
Method of Application: Solid, Broadcast				
When will application occur: Fall (Sept - Oct) or early Spring if conditions allow				
Nutrient Budget		Nitrogen-based Application	Phosphorus-based Application	Source of information
1	Crop Nutrient Needs, lbs/acre	50		MT Fertilizer
2	(-) Credits from previous legume crops, lbs/ac	-		
3	(-) Residuals from past manure production lbs/acre	6		Soil Test N
4	(-) Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	-		
5	(-) Nutrients supplied in irrigation water, lbs/acre	-		
6	= Additional Nutrients Needed, lbs/acre	44		
7	Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	15		Manure Test
8	(x) Nutrient Availability factor, for Phosphorus based application use 1.0	.5		N availability cal.
9	= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	7.5		
10	Additional Nutrients needed, lbs/acre (calculated above)	44		
11	(/) Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.5		
12	= Manure Application Rate, tons/acre or 1000 gal/acre	5.9 tons / acre		

Comments:

At this rate, ~415.4 tons are applied to ~70.4 manure spreadable acres. This rate applies P at ~60.5 lbs per acre. Rotating fields receiving manure is recommended to ensure nutrients are not built up beyond manageable levels.

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: 8		Crop: Grass Hay		Year: 2015				
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	0	X 1.5	0
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	2	X 0.5	1
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	0	X 1.0	0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	0	X 1.0	0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	8	X 1.0	8
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	4	X 1.0	4
Total Phosphorus Index Value: 15.5 Medium								

Nutrient Budget Worksheet

Field identification: 9		Year: 2014	Crop: Grass Hay	
Expected Crop Yield: 2 tons				
Phosphorus index results or Phosphorus application from soil test: 15 Medium				
Method of Application: Solid, Broadcast				
When will application occur: Fall (Sept - Oct) or early Spring if conditions allow				
Nutrient Budget		Nitrogen-based Application	Phosphorus-based Application	Source of information
1	Crop Nutrient Needs, lbs/acre	50		MT Fertilizer
2	(-) Credits from previous legume crops, lbs/ac	-		
3	(-) Residuals from past manure production lbs/acre	6		Soil Test N
4	(-) Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	-		
5	(-) Nutrients supplied in irrigation water, lbs/acre	-		
6	= Additional Nutrients Needed, lbs/acre	44		
7	Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	15		Manure Test
8	(x) Nutrient Availability factor, for Phosphorus based application use 1.0	.5		N availability cal.
9	= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	7.5		
10	Additional Nutrients needed, lbs/acre (calculated above)	44		
11	(/) Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.5		
12	= Manure Application Rate, tons/acre or 1000 gal/acre	5.9 tons / acre		

Comments:

At this rate, ~708 tons are applied to ~120 manure spreadable acres. This rate applies P at ~60.5 lbs per acre. Rotating fields receiving manure is recommended to ensure nutrients are not built up beyond manageable levels.

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: 9		Crop: Grass Hay		Year: 2015				
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	0	X 1.5	0
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	0	X 1.0	0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	0	X 1.0	0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	8	X 1.0	8
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	4	X 1.0	4
Total Phosphorus Index Value: 15 Medium								

Nutrient Budget Worksheet

Field identification: 12		Year: 2014	Crop: Pasture		
Expected Crop Yield: 2 tons					
Phosphorus index results or Phosphorus application from soil test: 15 Medium					
Method of Application: Solid, Broadcast					
When will application occur: Fall (Sept - Oct) or early Spring if conditions allow					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	50		MT Fertilizer
2	(-)	Credits from previous legume crops, lbs/ac	-		
3	(-)	Residuals from past manure production lbs/acre	7		Soil Test N
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	-		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	-		
6		= Additional Nutrients Needed, lbs/acre	43		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	15		Manure Test
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	.5		N availability cal.
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	7.5		
10		Additional Nutrients needed, lbs/acre (calculated above)	43		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.5		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	5.7 tons / acre		

Comments:

At this rate, ~592.8 tons are applied to ~104.0 manure spreadable acres. This rate applies P at ~58.4 lbs per acre. Rotating fields receiving manure is recommended to ensure nutrients are not built up beyond manageable levels.

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: 12		Crop: Pasture				Year: 2015		
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	0	X 1.5	0
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	0.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	0	X 1.0	0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	0	X 1.0	0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	8	X 1.0	8
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	2	X 1.0	2
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	4	X 1.0	4
Total Phosphorus Index Value: 15 Medium								

Nutrient Budget Worksheet

Field identification: 43

Year: 2014

Crop: Grain Corn

Expected Crop Yield: 150 bushels

Phosphorus index results or Phosphorus application from soil test: 14.5 Medium

Method of Application: Solid, Broadcast

When will application occur: Fall (Sept - Oct) or early Spring if conditions allow

Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	180		MT Fertilizer
2	(-)	Credits from previous legume crops, lbs/ac	-		
3	(-)	Residuals from past manure production lbs/acre	90		Soil Test N
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	-		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	-		
6		= Additional Nutrients Needed, lbs/acre	90		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	15		Manure Test
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	.5		N availability cal.
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	7.5		
10		Additional Nutrients needed, lbs/acre (calculated above)	90		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.5		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	12 tons / acre		

Comments:

At this rate, ~1,404 tons are applied to ~117 manure spreadable acres. This rate applies P at ~123 lbs per acre. Rotating fields receiving manure is recommended to ensure nutrients are not built up beyond manageable levels. Corn on Corn rotations will help draw down nutrients.

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: 43		Crop: Corn Grain			Year: 2015			
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA>10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or Injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	0	X 1.0	0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	0	X 1.0	0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	4	X 1.0	4
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	4	X 1.0	4
Total Phosphorus Index Value: 14.5 Medium								

Nutrient Budget Worksheet

Field identification: 41		Year: 2014	Crop: Grain Corn		
Expected Crop Yield: 150 bushels					
Phosphorus index results or Phosphorus application from soil test: 14.5 Medium					
Method of Application: Solid, Broadcast					
When will application occur: Fall (Sept - Oct) or early Spring if conditions allow					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	180		MT Fertilizer
2	(-)	Credits from previous legume crops, lbs/ac	-		
3	(-)	Residuals from past manure production lbs/acre	93		Soil Test N
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	-		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	-		
6		= Additional Nutrients Needed, lbs/acre	87		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	15		Manure Test
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	.5		N availability cal.
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal	7.5		
10		Additional Nutrients needed, lbs/acre (calculated above)	87		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.5		
12		= Manure Application Rate, tons/acre or 1000 gal/acre	11.6 tons / acre		

Comments:

At this rate, ~2,185.4 tons are applied to ~188.4 manure spreadable acres. This rate applies P at ~119 lbs per acre. Rotating fields receiving manure is recommended to ensure nutrients are not built up beyond manageable levels. Corn on Corn rotations will help draw down nutrients.

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field: 41		Crop: Corn Grain			Year: 2015			
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils	1	X 1.5	1.5
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils	0	X 1.5	0
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes	0	X 1.5	0
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High	1	X 0.5	0.5
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm	1	X 0.5	0.5
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges	0	X 1.0	0
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	0	X 1.0	0
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges	4	X 1.0	4
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205	4	X 1.0	4
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.	4	X 1.0	4
Total Phosphorus Index Value: 14.5 Medium								

Record Keeping Forms

Record Keeping Forms Producer Activity Checklist

Calendar Year _____

Activity	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec
Soil Sampling												
Date / Initials												
Manure Sampling												
Date / Initials												
Spreader or Equipment Calibration												
Date / Initials												
Record Manure Volume	X	X	X	X	X	X	X	X	X	X	X	X
Storage:												
Volume / Initials												
Record Manure Volume												
Storage:												
Volume / Initials												
Record Manure Volume												
Storage:												
Volume / Initials												
Mow Grass on Earthen Berm												
Date / Initials												
Other												
Date / Initials												
Recordkeeping (see forms on following pages)	X	X	X	X	X	X	X	X	X	X	X	X

Notes: An X indicates that the indicated activity is scheduled for that month. Duplicate this form as needed for additional years.

[illegible][illegible]

Crop Records

[illegible]

(1) Percent residue cover left after planting

Manure Application Records

App. #	Field	Date	Manure Source	Equipment	Days to Incorpor.	Rate/A Gal or Ton	Loads	Total Applied Gal or Ton	Acres Cov.
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

App. #	Hauler's Name (1)	Ground Cover % (2)	Soil Condition (3)	Air Temp. (4)	Wind Speed (5)	Wind Dir. (6)	Weather (7)	Rain Before (8)	Rain After (9)	Notes/Comments
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

(1) Name or initials of the person who applied the manure.

(2) Percent residue or ground cover at time of application.

(3) Soil condition at time of application: Dry, Firm, Wet, Muddy, Snow-Covered, Frozen.

(4) Air temperature at time of application.

(5) Wind speed at time of application: Calm (0-2 mph), Light (2-5 mph), Breezy (5-15 mph), Windy (>15 mph).

(6) Wind direction at time of application: N, NE, E, SE, S, SW, W, NW.

(7) Weather condition at time of application: Sunny, Partly Cloudy, Cloudy, Rain, Snow.

(8) Amount of rainfall during the 24 hours prior to application.

(9) Amount of rainfall during the 24 hours after application.

[illegible]

(1) With commercial fertilizers, enter the analysis in the form of N-P₂O₅-K₂O (examples: anhydrous ammonia is 82-0-0, diammonium phosphate is 18-46-0). With irrigation water, enter the nitrate concentration in ppm.

Mortality Log

[illegible]

Nutrient Budget Worksheet

Field identification:		Year:	Crop:		
Expected Crop Yield:					
Phosphorus index results or Phosphorus application from soil test:					
Method of Application:					
When will application occur:					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre			
2	(-)	Credits from previous legume crops, lbs/ac			
3	(-)	Residuals from past manure production lbs/acre			
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre			
5	(-)	Nutrients supplied in irrigation water, lbs/acre			
6		= Additional Nutrients Needed, lbs/acre			
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)			
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0			
9		= Available Nutrients in Manure, lbs/ton or lbs/1000 gal			
10		Additional Nutrients needed, lbs/acre (calculated above)			
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)			
12		= Manure Application Rate, tons/acre or 1000 gal/acre			

Comments:

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

Field:		Crop:			Year:				
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk	
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils		X 1.5		
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils		X 1.5		
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes		X 1.5		
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High		X 0.5		
Olson Soil Test P	-----	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm		X 0.5		
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges		X 1.0		
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205		X 1.0		
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges		X 1.0		
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205		X 1.0		
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.		X 1.0		
Total Phosphorus Index Value:									